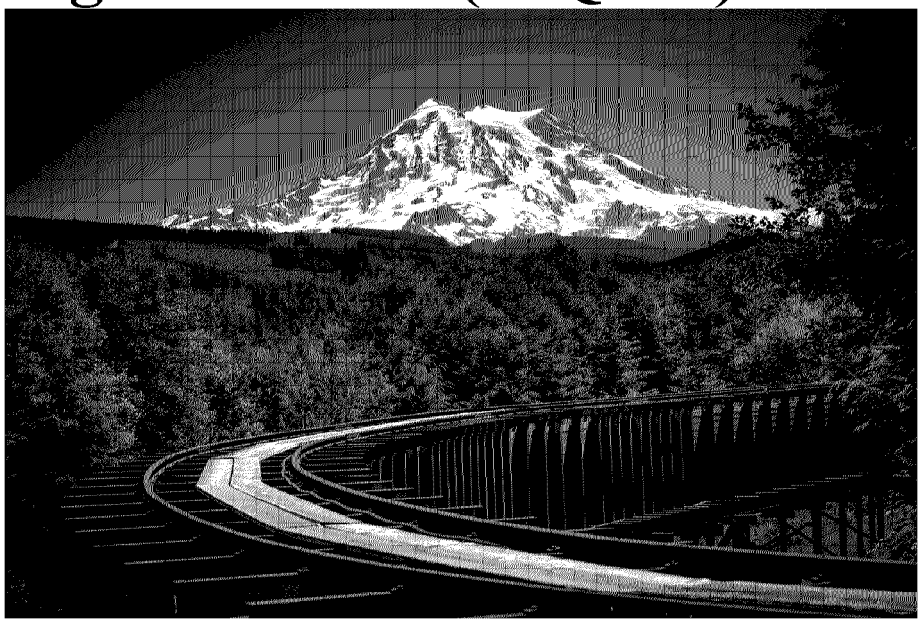
Electron Hydro's Water Quality Management Plan (WQMP) - *DRAFT*



Dec 8, 2021

Project Location

Electron Hydro, LLC

19318 Electron Rd E.

Orting, Washington 98360

Corporate Office Location

Electron Hydro, LLC

1800 James St. Suite 201

Bellingham, Washington 98225

Water Quality Management Plan Review and Amendment

In accordance with Department of Ecology (Ecology) Administrative Order #19624, this plan in its final form is approved by Ecology as the Water Quality Management Plan (WQMP) for the Electron Hydroelectric Project (Project). Any amendments to this plan will require prior approval from Ecology before implementation to the plan. If an amendment be approved, the plan shall be updated to the most accurate version of the document and logged in the table below.

Summary of WQMP Amendments

Amendments	**Section and Page Number**	**Person Making Changes and Date**

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AST	Above-ground Storage Tank
AO	Administrative Order #19264
AWQMR	Annual Water Quality Management Report
BMP	Best Management Practice
CAP	Corrective Action Plan
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Reports
EH	Electron Hydro LLC
EPA	United States Environmental Protection Agency
ERTS	Environmental Report Tracking System
ESA	Endangered Species Act

HPA	Hydraulic Project Approval
HOWQMP	Hydroelectric Operation Water Quality Monitoring Plan
JARPA	Joint Aquatic Resource Permit Applications
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NTU	Nephelometric Turbidity Unit
NPDES	National Pollutant Discharge Elimination System
OHWM	Ordinary High-Water Mark
QA/QC	Quality Assurance/Quality Control
RCW	Revised Code of Washington
RM	River-Mile
SMP	Sediment Management Plan
SPCC	Spill Prevention Control and Countermeasures
SOP	Standard Operating Procedures
SWPPP	Stormwater Pollution Prevention Plan
TSP	Toxic Substances Plan
TWQAP	Temperature Water Quality Attainment Plan
USCOE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife

WDOE	Washington Department of Ecology (aka Ecology)
WQAP	Water Quality Attainment Plan
WQMP	Water Quality Management Plan
WQS	Water Quality Standards
WRIA	Water Resources Inventory Area
7-DADMAX	Seven (7) day average of the daily maximum temperature

1.2 Introduction and Background

1.2.1 Preface – Electron Hydro's Commitment to Environmental Protection

One of the key pillars that Electron Hydro LLC (EH) is built on is the focus on being a renewable resource community partner, and with that one of our core values is environmental stewardship. EH continues to improve salmon enhancement, water quality standards, sustainable forestry, provide wildlife habitat, and historic preservation all while continuing to optimize renewable energy generation for now and the years to come. EH is uniquely positioned to meet present and future renewable energy and natural resource needs.

1.2.2 Administrative Order

Washington State Department of Ecology Administrative Order No. 19624 (AO) requires a Water Quality Management Plan (WQMP) that details a brief history of the Electron Hydro Project (Project) hydroelectric management practices that influence water quality throughout the entire Project area for operation and maintenance activities and provide compliance with Water Quality Standards (WQS). The parameters to be managed include Aquatic Life Criteria for Temperature [WAC173-201A-200(1)(c)], Turbidity [WAC173-201A-200(1)(e)], and Toxic Substances [WAC173-201A-240]. The WQMP includes Best Management Practices (BMPs) and planned operational changes that will ensure WQS are met at all locations within the entire Project area during operation and maintenance activities, including landslide prevention and at all stockpile locations that could discharge to waters of the state. This WQMP fulfills the conditional requirements set forth in the AO. See AO for details.

1.2.2.1 Objectives

- Satisfy all conditions of the Administrative Order No. 19624
- Detail brief Project history of hydroelectric management practices that influence water quality
- Provide locations and planned methods for ensuring WQS for: temperature, turbidity, and toxic substances are met
- Provide detail for all reporting requirements

1.2.3.1 Sub-elements of the WQMP Plan

Per the conditions of the AO, this WQMP includes three subplans:

- Hydroelectric Operations Monitoring Plan (HOWQMP),
- Sediment Management Plan (SMP),
- and Toxic Substances Plan (TSP).

These subplans satisfy the conditions in the AO for a complete water quality management plan for the Project.

1.2.4 Project Description and Background

1.2.4.1 Background narrative for overall Project

The Project has been in operation since 1904. EH, which acquired the Project in 2014, operates the Project to supply a renewable source of energy to its market in Pierce County.

The Puyallup River and its largest tributaries, the Carbon and White rivers, originate at high

elevations on the west and north slopes of Mt. Rainier, within Mt. Rainier National Park. As a rain, snowpack and glacier-fed system, the Puyallup River typically experiences two seasonal peaks, a large peak in the early summer in response to snowmelt and a smaller peak in the late fall in response to rainfall. Glacial meltwater maintains baseflows in the mainstem and causes high turbidity levels in the Puyallup River during summer and early fall periods.

Water enters the Project at the Headworks located at RM 41.7, where it is diverted into a 10-mile Flume, passes through a mid-course Settling Basin, and flows into a Forebay. Four Penstocks exit the Forebay and deliver water to the Powerhouse with 873 feet (ft) of head. The water exits the Tailrace (return flow) to the Puyallup River at RM 31.2.

The Project has no significant water pool storage above the diversion and is operated as a run-of-river project. Since taking ownership of the Project EH continued to operate the Project as the previous owner Puget Sound Energy (PSE) had historically. The Project generally operated continuously throughout the year except for planned maintenance outages and during emergency outages.

Operating the Diversion affects instream flow in the approximately 10.5 miles of the Puyallup River (the "Bypass Reach") that bypasses the Intake and Flume and remains in the river. At times high river flows will overwhelm the Diversion structure topping over the entire crestline, sweeping sediment and woody debris downstream. During operation the Diversion has been operated by The Electron Hydro Powerhouse Office or remotely by EH operators. The Diversion has a manual override to control water levels of the Flume with a tainter gate.

Major planned improvements will address the need to pass increasingly higher sediment volumes as well as establish and maintain fish exclusion, i.e. keep fish from entering the water delivery Flume and return them to the river immediately below the Headworks instead.

The Project, under judicial order, is not operating until EH attains a Section 10(a)(1)(A) of the Endangered Species Act (ESA) for an Incidental Take Permit (ITP). EH is drafting a Habitat Conservation Plan (HCP) to support an application for an ITP.

In parallel, EH is drafting permits necessary for upgrading the Headworks for sediment exclusion and install fish exclusion screens to meet fisheries and ESA standards and requirements.

Permits will include both the remaining work to complete Phase I, Bladder Spillway (a resubmittal as requested by Pierce County) and Phase II, Fish Exclusion Screens for the two-phase project for the Headworks. The remaining work to complete phase one is a resubmittal from Construction Stormwater Water General Permit #WAR306648.

It is intended by EH to put forth as much planning in advance to minimize any potential amendments to this plan, however the conditions of the new permits and licenses are undefined at this time, upon the conclusion and timing of these new conditions for the Project, this monitoring plan may necessitate amendments based upon those conditions. In addition to developing an HCP for the Project, EH intends to finish remaining in-water work for phase one of a two phase project to install fish screens at the Project's Headworks. EH is working on the design for phase two fish screens to protect ESA fish species and increase the ability to remove sediment uptake into the facilities.

The 10.5-mile-long bypass reach of the Puyallup River receives flows from additional waterbodies in the Puyallup River Watershed, notable waterbodies in this bypass reach: Niesson Creek, Kellog Creek, and Le Dout Creek.

Currently with no operation, the facility is not taking water into the Flume from the Puyallup River or discharging water from the Powerhouse for generating electricity.

1.2.4.2 History of the Electron and Water Quality Monitoring

The Project has operated as a run-of-river project since 1904. The Project represents a substantial living history lesson in the imagination, engineering, and willpower of the early settlers and their technology. There are few facilities that continue to operate as originally intended for such a long period of time. Elements such as the train on top of flume to service the flume pre-date the automobile, yet ultimately have had a lower impact and longer service life. The turbines and generators are the original equipment and are still functional.

Electron began operations in 1904 under the ownership of Puget Sound Energy (PSE).

The Project was established prior to the passage of the Federal Water Power Act (June 10, 1920). The Project is not subject to licensing by the Federal Energy Regulatory Commission (FERC).

In 1997, PSE and the Puyallup Tribe of Indians (PTI) entered into a fisheries Resource Enhancement Agreement (REA) to address some of the adverse effects of project maintenance and operations on fish and other aquatic resources. In 1998, under the terms of the REA, PSE constructed a Transfer system to improve downstream fish passage and survival of juvenile salmonid species that become entrained in the Project Headworks and transit the Flume to the Project Forebay. The Transfer Facility enabled operators to transport fish from the Project Forebay to downstream of the Powerhouse to avoid exposure to the penstocks and powerhouse turbines which would otherwise kill them.

Shortly after the Transfer Facility was completed, Puget Sound Chinook salmon were listed as "threatened" under the ESA on August 2, 1999, followed by Bull trout on November 1, 1999. In 2000, PSE built a fish ladder under the REA, enabling upstream fish passage at the Project Headworks for the first time since the Project began operating. The ladder provides access to additional river and tributary habitat above the Headworks.
Subsequently, Puget Sound Steelhead trout were listed as "threatened" under the ESA in 2007. Historically the Project has not been required to monitor for water quality parameters.

In the summer of 2020, EH continued a construction project as phase one of a two-phase project to install fish exclusion screens at the Headworks. This phase one consisted of in-water work to upgrade the spillway of the Headworks and the opening of the Intake to improve natural bedload movement and hydraulics for the facility that supports the efficacy of the fish screens.

During construction there was a stop work order following the discharge of turf rubber into the Puyallup River. This was caused by the rupture of a high-density polyethylene (HDPE) liner, which was in combination with the turf used as a liner for a temporary cofferdam for the in-water work. EH immediately put forth efforts to clean up and remove plastic turf from the Puyallup River. EH worked with agencies to stabilize the site in preparation for high flow events that occur during winter months. EH was permitted to install a temporary rock fill dam to replace the portion of the spillway that was removed during construction, finishing this work in November 2020.

In the summer of 2021, EH conducted a Fish Passage Enhancement Project at the Headworks at the request of the National Marine Fisheries Service. The project was successful in facilitating fish passage at the Headworks. Below is a list of things that were accomplished with this project. In summary:

- Build a river gravel cofferdam for in-river work
- Repair and Re-deck wooden spillway
- Clean out fish ladder cells
- Reestablish downstream connection channel directly downstream from wood spillway, to connect the left channel and the fish ladder – per request by National Marine Fisheries (NMFS)
- Lower crest of wooden spillway
- Move cofferdam from right to left channel – designed to overtop at 3,000 cfs
- Rock spillway reinforcement

1.2.4.3 Historic Sediment Management

Historically there has been a buildup of sediment in the Forebay Reservoir, the man-made reservoir at the downstream end of the flume, which over time as fast-moving water from the flume slows down in the reservoir allowed for inevitable settling of sediment to occur. To address the excess sediment in the Forebay, periodic operational shutdowns would occur to clean out the excess sediment by closing the tainter gate at the intake to stop water flow and drain the Forebay of water through the penstocks. During the shutdowns the Forebay would be dredged to remove the excess sediment which was placed on an adjacent laydown area for the sediment.

In efforts to continue to further manage sediment, a Settling Basin was constructed approximately four miles downstream from the Headworks to reduce the velocity of the water in the flume to allow for settling of sediment. The Settling Basin was constructed with a gate valve as a means for draining the basin. This worked for water as well as sediment removal. Through the REA in 1997, this gate valve was approved for operation during conditions when the Bypass reach of the river had a minimum of 500 cfs.

Routine practice for sediment management at the basin consisted of dredging the Settling Basin of excess accumulated sediment, which was deposited on the adjacent property. EH has continued this operation of dredging the excess sediment from the basin as PSE had done.

In February 2020, a landslide occurred next to the Settling Basin of the Project. The landslide consisted primarily of the sediment stockpile adjacent to the Settling Basin. The slide was a great lesson in the need for improving the management of sediment for the Project. Since the Puyallup River is glacially fed, it has naturally high sediment loads that move down the river annually. There is an annual average of 980,000 tons of suspended sediment load in the Puyallup River, with a varying range of 250,000 tons to 1,700,000 tons (PCC Farmland Trust, 2016). After investigation, the slide did not discharge sediment into the Puyallup River. However, EH will continue to monitor for signs of movement of the slide area. The improvements to reduce sediment uptake at the Headworks is intended to eliminate the need for further stockpiling of accumulated sediment from the basin. *See* the Settling Basin map for details. EH will have a sediment management plan that meets the conditions of the AO, see the sediment management plan for management details going forward.

EH continued to operate the Project following the practices of operation of PSE with both sediment management and the transfer of fish downstream of the Project through the trap and haul program up until July 2020.

1.2.4.4 Historic Toxic Substance Spills

Historically there are two accounts of spill events. One was on March 13, 2017 where EH staff noticed a hydraulic oil sheen in the Project's Forebay. It was estimated that a total volume of oil leaked was less than 1 quart. Containment was readily deployed and to prevent sheen from

leaving the contaminated area, it should be noted that the hydraulic oil used has biodegradable properties sourced from Ecoterra. The second incident occurred on July 30,2018 where a hydraulic hose fitting cracked while under load and thus sprayed approximately one-half gallon of hydraulic oil (Ecoterra). See attached Incident Reports for both spill events.

1.2.4.5 Current Practices and General Operation and Maintenance Activities

Upon taking ownership of the Project, EH is taking the unique opportunity for renewed efforts to address conservation of listed species and to adjust to future potential climate change. The Mt. Rainier and Puyallup watershed vicinity are anticipated to become warmer with more precipitation on average over the years. Some of the biggest considerations for the project are continuing to conserve the natural resources that have potential to be impacted by the Project: water and fish.

EH intends to go forward with future improvements for the Project which includes sediment and fish exclusion facilities at the Headworks that will reduce the overall Projects impact on fish and reduce the uptake of sediment from the river.

Currently the Project is in a non-operative mode and there is no active construction occurring at the Project, and no discharging from the tailrace. At this time the only activities occurring are normal maintenance and monitoring of the facilities of the Project while EH works toward developing an HCP to obtain an ITP for the betterment of future operations of the Project.

EH is completing the fish exclusion screen design and HCP for the project.

The intent of this construction project is to install fish screens and sediment exclusion at the Headworks, which will greatly reduce the amount of sediment accumulation at the basin. With this, EH does not intend to use the gate valve for controlling drainage at the Settling Basin.

As the phase two of the construction project is still under design and permitting, further description is limited until this is completed. However preliminary intent of the project is to screen out ESA listed species with the fish screens and to remove larger sediment particulates from entering the flume. The water that enters the intake and returns fish and sediment to the river would remain below the Ordinary High-Water Mark (OHWM).

After the planned rubber bladder spillway is installed in the diversion, there still will be some accumulation of larger sediment in the river channel upstream of the diversion. This sediment will naturally move during higher flow events past the diversion and downstream. Sediment that enters the intake will be returned downstream of the diversion through the same system that returns fish to the river. Sediments that pass through the fish exclusion system will, once returned to the river, move downstream as natural bedload during higher flow events. Together the replacement spillway and the improvements to the diversion will allow for minimal impact to the river and allow for changing river flows to transport the glacial till downstream during high flow events which occur in the river frequently.

EH is projected to complete the HCP by 2022 and begin work on phase two construction, which would be anticipated to be completed by late 2023.

1.3 Water Quality Standards for Surface Waters

Washington water quality standards are promulgated in WAC 173-201A. The waters within the Project area are assigned the following beneficial uses:

- Core Summer Salmonid Habitat;
- Salmonid spawning, rearing, and migration;
- Wildlife habitat; and
- Aesthetic values.

In addition, the Puyallup River reach from the Headworks to the Powerhouse is designated for supplemental spawning and incubation criteria in WAC 173-201A-602.

Based upon these use designations, the following sections describe the applicable surface water quality standards for temperature, turbidity, and oil spill prevention requirements at the Project.

1.3.1 Water Temperature [WAC 173-201A-200(c)]

Washington's numeric temperature criteria are expressed as the rolling seven-day average of daily maximum temperatures (7-DADMAx). This is typically calculated by averaging daily maximum temperatures for three days prior to and three days after each.

The Puyallup River reach from the Headworks to the Powerhouse is designated as *Core Summer Salmonid Habitat*. The applicable temperature criterion for this designation is 16° C as a 7-DADMax during July 2nd to September 14th (WAC 173-201A-200).

In addition, the more stringent 13° C criterion (as a 7-DADMax) for the protection of spawning and rearing applies from September 15th – July 1st (WAC 173-201A-200).

When natural conditions exceed the applicable numeric criteria, human actions may not cumulatively increase the receiving water temperature by more than 0.3° C, as a 7-DADMax. When the background temperature of the water body is cooler than the applicable numeric

criteria, incremental temperature increases from all non-point sources combined may not exceed 2.8° C at any time.

1.3.2 Water Turbidity [WAC 173-201A-200(e)]

Numeric water quality criteria are expressed as nephelometric turbidity units (NTUs). The turbidity criteria for *Core Summer Salmonid Habitat* shall not exceed 5 NTU over background when the background is 50 NTU or less; or a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

The turbidity criteria include a provision for mixing zones, that is dependent upon stream flow. For streams with flows greater than 100 cubic feet per second (cfs) flow at the time of construction, the point of compliance shall be a maximum of three hundred feet downstream of the activity causing the turbidity exceedance. Waters with flows between 11-100 cfs have a compliance point at a maximum of two hundred feet downstream and flows of 10 or less have a compliance point at a maximum of one hundred feet downstream.

1.3.3 Toxic Substances (SPCC) [WAC 173-201A-240]

Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the department.

Typical fuels used in or near water for the Project include volatile ("gasoline") and semi-volatile ("diesel") petroleum products, denoted as Gx and Dx respectively. Ecology has a zero (0) permissible amount introduced to waters of the state for both Gx and Dx.

1.5 Annual Water Quality Management Report (AWQMR)

EH will prepare an annual report that summarizes all routine water quality monitoring and identify water quality issues, data sheets will be attached, and provide an analysis of the data that evaluates compliance with water quality standards. This annual report shall be included in the annual report for the Annual Water Quality Management Report (AWQMR). The AWQMR shall be submitted to Ecology on or before January 31st of every year for reporting of January through December, beginning January 31st, 2022.

Any exceedances of water quality standards will be called in as an Environmental Report Tracking System (ERTS) notification within 24-hours of acknowledgement at 360-407-6300 and the current water quality compliance manager will be notified via notified.

1.6 Environmental Report Tracking System

In addition to the annual and immediate reporting, the following additional notifications are required by Ecology in response to exceedance events and changed conditions:

- High turbidity phone notification – within 24 hours
- Non-compliance notification by phone – within 24 hours
- Non-compliance reports provide written notification – within 5 days of non-compliance

Additionally, phone and written notifications report to Washington Department of Ecology – Environmental Report Tracking System (ERTS)

ERTS Number: 360-407-6300

ERTS contact: Carol Serdar, Hydropower WQ Compliance Manager

(360) 74209751

Cser461@ecy.wa.gov

1.7 Environmental Information Management System (EIM)

EH will in accordance with the AO submit monthly data online to Ecology's Environmental Information Management System (EIM) usng Ecology's guidelines found on the website https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database/EIM-submit-data). EIM data will be uploaded annually within one month of the Annual Report submittal.

2 Sediment Management Plan (SMP)

2.1.1 Facility Information and Contacts

1.1.1. Emergency Contacts and Notifications

Project Owner – Thom Fischer

Phone: 360-739-9999

Project Manager – Adam Cleveland

Phone: 360-746-3421

1.1.2. Non-Emergency Facility Contacts and Information

Main Office

Phone: 360-761-1601

Address: 19318 Electron Road E, Orting, WA 98360

Bellingham Corporate Office

Phone: 360-738-9999

Address: 1800 James ST, Ste 201, Bellingham, WA 98225

2.2 Purpose

The Purpose of this Sediment Management Plan is to meet the conditions of Washington State Department of Ecology Administrative Order No. 19624 (AO) which requires a sediment management plan that includes a brief site history, a narrative of sediment management (current and past practices) and all sediment discharges, and all BMPs that will be used to ensure water quality compliance with Water Quality Standards (WQS). See AO for details. This Sediment Management plan meets the conditions of the AO.

2.2.1 General Facility Description

2.2.1.1 Background narrative for overall Project

The Project has been in operation since 1904. EH, which acquired the Project in 2014, operates the Project to supply a renewable source of energy to its market in Pierce County.

The Puyallup River and its largest tributaries, the Carbon and White rivers, originate at high elevations on the west and north slopes of Mt. Rainier, within Mt. Rainier National Park. As a rain, snowpack and glacier-fed system, the Puyallup River typically experiences two seasonal peaks, a large peak in the early summer in response to snowmelt and a smaller peak in the late fall in response to rainfall. Glacial meltwater maintains baseflows in the mainstem and causes high turbidity levels in the Puyallup River during summer and early fall periods.

Water enters the Project at the Headworks located at RM 41.7, where it is diverted into a 10-mile Flume, passes through a mid-course Settling Basin, and flows into a Forebay. Four Penstocks exit the Forebay and deliver water to the Powerhouse with 873 feet (ft) of head. The water exits the Tailrace (return flow) to the Puyallup River at RM 31.2.

The Project has no significant water pool storage above the diversion and is operated as a run-of-river project. Since taking ownership of the Project EH continued to operate the Project as the previous owner Puget Sound Energy (PSE) had historically. The Project generally operated continuously throughout the year except for planned maintenance outages and during emergency outages.

Operating the Diversion affects instream flow in the approximately 10.5 miles of the Puyallup River (the "Bypass Reach") that bypasses the Intake and Flume and remains in the river. At times high river flows will overwhelm the Diversion structure topping over the entire crestline, sweeping sediment and woody debris downstream. During operation the Diversion has been operated by The Electron Hydro Powerhouse Office or remotely by EH operators. The Diversion has a manual override to control water levels of the Flume with a tainter gate.

Major planned improvements will address the need to pass increasingly higher sediment volumes as well as establish and maintain fish exclusion, i.e. keep fish from entering the water delivery Flume and return them to the river immediately below the Headworks instead.

The Project, under judicial order, is not operating until EH attains a Section 10(a)(1)(A) of the Endangered Species Act (ESA) for an Incidental Take Permit (ITP). EH is drafting a Habitat Conservation Plan (HCP) to support an application for an ITP.

In parallel, EH is drafting permits necessary for upgrading the Headworks for sediment exclusion and install fish exclusion screens to meet fisheries and ESA standards and requirements.

Permits will include both the remaining work to complete Phase I, Bladder Spillway (a resubmittal as requested by Pierce County) and Phase II, Fish Exclusion Screens for the two-phase project for the Headworks. The remaining work to complete phase one is a resubmittal from Construction Stormwater Water General Permit #WAR306648.

It is intended by EH to put forth as much planning in advance to minimize any potential amendments to this plan, however the conditions of the new permits and licenses are undefined at this time, upon the conclusion and timing of these new conditions for the Project, this Sediment Management plan (SMP) may necessitate amendments based upon those conditions. In addition to developing an HCP for the Project, EH intends to finish remaining in-water work for phase one of a two phase project to install fish screens at the Project's Headworks. EH is working on the design for phase two fish screens to protect ESA fish species and increase the ability to remove sediment uptake into the facilities.

The 10.5-mile-long bypass reach of the Puyallup River receives flows from additional waterbodies in the Puyallup River Watershed, notable waterbodies in this bypass reach: Niesson Creek, Kellog Creek, and Le Dout Creek.

Currently with no operation, the facility is not taking water into the Flume from the Puyallup River or discharging water from the Powerhouse for generating electricity.

2.2.1.2 History of Electron and Sediment Management – summary of past practices

Historically there has been a buildup of sediment in the Forebay Reservoir, the man-made reservoir at the downstream end of the flume, which over time as fast-moving water from the flume slows down in the reservoir allowed for inevitable settling of sediment to occur. To address the excess sediment in the Forebay, periodic operational shutdowns would occur to clean out the excess sediment by closing the tainter gate at the intake to stop water flow and drain the Forebay of water through the penstocks. During the shutdowns the Forebay would be excavated to remove the excess sediment which was placed on an adjacent laydown area for the sediment. This occurred on a varying frequency depending on how quickly the reservoir accumulated sediment. Approximately every five to seven years excavation was needed to maintain the reservoir.

In the summer of 2020, EH drained the Forebay and excavated a portion of the excess accumulated sediment and placed it and spread it over the same footprint as previously done. This material was covered with temporary straw mulch and a silt fence perimeter was placed around it. Additional check dams were added to adjacent drainage ditches. In the fall of 2021 grass seeding was applied to the slopes and drainage swales were added to the toe of slopes as additional BMPs to protect and stabilize the slopes.

In efforts to continue to further manage sediment, a Settling Basin was constructed approximately four miles downstream from the Headworks to reduce the velocity of the water in the flume to allow for settling of sediment. The Settling Basin was constructed with a gate valve as a means for draining the basin. This worked for water as well as sediment removal. Through the REA in 1997, this gate valve was approved for operation during conditions when the Bypass reach of the river had a minimum of 500 cfs.

Routine practice for sediment management at the basin consisted of dredging the Settling Basin of excess accumulated sediment, which was deposited on the adjacent property. EH has continued this operation of dredging the excess sediment from the basin as PSE had done.

In February 2020, a landslide occurred next to the Settling Basin of the Project. The landslide consisted primarily of the sediment stockpile adjacent to the Settling Basin. The slide was a great lesson in the need for improving the management of sediment for the Project. Since the Puyallup River is glacially fed, it has naturally high sediment loads that move down the river annually. There is an annual average of 980,000 tons of suspended sediment load in the Puyallup River, with a varying range of 250,000 tons to 1,700,000 tons (PCC Farmland Trust, 2016). After investigation, the slide did not discharge sediment into the Puyallup River. However, EH will continue to monitor for signs of movement of the slide area. The improvements to reduce sediment uptake at the Headworks is intended to eliminate the need for further stockpiling of accumulated sediment from the basin. *See* the Settling Basin map for details. EH will have a sediment management plan that meets the conditions of the AO, see the sediment management plan for management details going forward.

EH continued to operate the Project following the practices of operation of PSE with both sediment management and the transfer of fish downstream of the Project through the trap and haul program up until July 2020.

2.2.1.3 Current Practices

Upon taking ownership of the Project, EH is taking the unique opportunity for renewed efforts to address conservation of listed species and to adjust to future potential climate change. The Mt. Rainier and Puyallup watershed vicinity are anticipated to become warmer with more precipitation on average over the years. Some of the biggest considerations for the project are continuing to conserve the natural resources that have potential to be impacted by the Project: water and fish.

EH intends to go forward with future improvements for the Project which includes sediment and fish exclusion facilities at the Headworks that will reduce the overall Projects impact on fish and reduce the uptake of sediment from the river.

Currently the Project is in a non-operative mode and there is no active construction occurring at the Project, and no discharging from the tailrace. At this time the only activities occurring are normal maintenance and monitoring of the facilities of the Project while EH works toward developing an HCP to obtain an ITP for the betterment of future operations of the Project. See the Hydroelectric Operations Water Quality Monitoring Plan (HOWQMP) for details on monitoring.

EH is completing the fish exclusion screen design and HCP for the project.

The intent of this construction project is to install fish screens and sediment exclusion at the Headworks, which will greatly reduce the amount of sediment accumulation at the basin. With this, EH does not intend to use the gate valve for controlling drainage at the Settling Basin. EH also as a preemptive measure installed flow control BMPs at the toe of the recent slide area as erosion control prevention. See Settling Basin Map for details.

Additionally, the Forebay Reservoir is estimated to not need as frequent of maintenance with the improved reduction in sediment uptake. Projections look to one to two times needing to remove accumulated sediment in the reservoir over a thirty-year period of operation.

As the phase two of the construction project is still under design and permitting, further description is limited until this is completed. However preliminary intent of the project is to

screen out ESA listed species with the fish screens and to remove larger sediment particulates from entering the flume. The water that enters the intake and returns fish and sediment to the river would remain below the Ordinary High-Water Mark (OHWM).

After the planned rubber bladder spillway is installed in the diversion, there still will be some accumulation of larger sediment in the river channel upstream of the diversion. This sediment will naturally move during higher flow events past the diversion and downstream. Sediment that enters the intake will be returned downstream of the diversion through the same system that returns fish to the river. Sediments that pass through the fish exclusion system will, once returned to the river, move downstream as natural bedload during higher flow events. Together the replacement spillway and the improvements to the diversion will allow for minimal impact to the river and allow for changing river flows to transport the glacial till downstream during high flow events which occur in the river frequently.

EH is projected to complete the HCP by 2022 and begin work on phase two construction, which would be anticipated to be completed by late 2023.

2.2.1.4 List of sediment management areas

2.2.1.4.1 Settling basin – sediment management (current and how it will change after screens are installed at intake)

The Settling Basin is a man-made basin approximately 4 miles downstream from the Headworks, built to reduce velocity of water passing along the flume to reduce transport of sediment load. There is a laydown yard for stockpiling materials as well as a historic maintenance shack located adjacent to the basin.

2.2.1.4.2 Upper Campus/Forebay Reservoir – sediment management (current and how it will change after screens are installed at intake)

The Upper Campus or colloquially coined the Forebay, consists of the Forebay Reservoir, a man-made lake for minimal water storage. The Penstock Gatehouse (Gatehouse), which houses the headworks for four (4) penstocks, is located on the north end of the reservoir. The penstocks feed water down the adjacent hill into the Powerhouse. In bulleted summary The Upper Campus also features:

- a maintenance shed (colloquially coined the Speeder Barn)
- a backup generator with 100 gallons of diesel next to the Gatehouse

- two 550 gallon Above-Ground Storage Tanks (AST's) each filled with diesel and gasoline, the tanks are double-walled and equipped with a Veeder-Root system
- two storage sheds located next to the Speeder Barn, one shed houses 55-gallon drums of new and used oil. The second shed stores 55-gallon drums of used oil.
- two transformers with a capacity of 100 and 150 gallons are also located at the Upper Campus.
- Stockpile laydown

3 Sediment Management

3.1.1 Potential Sources of Sediment and Management Strategies

3.1.1.1 General

The Puyallup River is formed by glaciers on the west side of Mount Rainer. These glaciers continually provide sediment such as clay, silt, and gravel to the river creating sand and gravel bars with the varying range of flows that the river experiences periodically through aggradation (build-up) and incision (downcutting) of the riverbed as part of the natural process of erosion and sediment transport for river systems. The sediment transport brings viscous sediment deposits during lower flows downstream, which causes the river to meander and flood during periods of high flow. Summertime sees glacial meltwater dominate the flow, turning the Puyallup River turbid annually. Additionally, the glaciers delay the onset of spring-summer runoff, compared to unglaciated river basins. Historically, these factors resulted in frequent flooding and extensive floodplain wetlands that provide rich and complex habitat for fish and other animals. Sediment in the river is comprised primarily of extra fine clay and fine silt to coarse gravel and large boulders.

The Project as a run-of-river hydroelectric operation inherently uptakes a portion of suspended sediment with the uptake of water at the Intake of the Project. This suspended sediment settles out in the Project at various locations, the Settling Basin and Forebay reservoir. Part of historically maintenance of the Project, the Settling Basin would be periodically dredged, and sediment would be stockpiled on adjacent property, see Settling Basin map for details. The Forebay Reservoir required less frequent maintenance, but over multiple years of accumulation the reservoir would lose capacity and efficiency from built up sediment. At such times, the reservoir would be drained and excavated. The excavated material would be placed on adjacent property.

3.1.1.2 Sources of Sediment

When the Project is undergoing the Startup process, which encompasses opening the Penstocks to let water into the Powerhouse to begin generating power, as the water leaves out the tailrace there is the potential for an initial discharge of built-up sediment in the Penstocks. This may occur as sediment that may fall out of suspension when there is no flow the Project is not operating. When water flowing during the Startup process if there is accumulated sediment it would likely resuspended release to the tailrace. See Management of Sediment for details for mitigation.

When the Project is operating there are two primary areas where sediment accumulation occurs, the Settling Basin and the Forebay. With this accumulation the efficiency and capacity of the Projects operations is reduced significantly requiring the maintenance and removal of excess sediment, which is removed and contained resulting in not a source of potential discharge. When the Forebay requires sediment removal the Project must close off the Intake and drain the Forebay of water to be able to remove the sediment. Towards the Forebay being completely drained of water there is the potential for a portion of built-up sediment to be flushed out in a small slurry as the lowering levels of water speed up resuspending a small portion of sediment into the Penstocks. Again, this process of draining the Forebay is infrequent and only as necessary, with need being spread out over multiple years at a time. See Management of Sediment below for details for mitigation.

Other sediment management practices at the Project include any stockpiled materials that could discharge to waters of the state.

The stockpile of sediment at the Settling Basin that a portion of which was part of the slide in 2020 did not discharge to the Puyallup River. BMPs are in place to prevent a discharge.

The stockpile of sediment at the Forebay has BMPs in place to stabilized and contain the stockpile.

3.1.2 Management of Sediment

EH will deploy all necessary and prudent BMPs to prevent a discharge to waters of the state, See Mitigation Strategies below for further details on BMPs and method for preventing discharges.

At the Forebay Reservoir the sediment stockpile is stabilized and contained. With operation of the facility there will be need to maintain the Forebay, as such EH intends to permit an increase of the footprint of the fill area to accommodate additional fill, which would be spread and leveled for improved drainage. As a part of EH's goals and plans environmental stewardship is part of the long-term pillars for all plans in additional to efficient operation and maintenance of the Project. An expansion of the footprint is currently under permitting with Pierce County.

At the Settling Basin, the landslide is currently being monitored for movement. Since the slide occurred in February 2020 there has been no additional stockpiling of sediment on the slope at the Settling Basin. By winter of 2021 majority of the slide has vegetated and EH installed wattles

staggered along the last 100 ft towards the toe of the slide as a preventative erosion control BMP. Currently, EH intends to monitor the site conditions to see how BMPs perform. Future management will be dictated based upon performance, should further mitigation be required EH will prepare a plan for mitigation and provide to Ecology for review and approval.

3.1.2.1 Startup

Startup is an irregular activity as normal operations do not require a start/stop of the generators regularly, as the Project can run continuously as it serves as a power generation source. Times when the Project requires shutdown occur when construction, repairs, or significant maintenance (i.e., Forebay excavating) is required for the Project that would impact the flow of water.

During times of shutdown there is a possibility for a small portion of sediment to fall out of suspension in the Penstocks. At such times when the Project is ready to begin Startup, the generators will be turned on and ramped up in the Powerhouse. Throughput of water is controlled from the Powerhouse to start ramp up slowly as generators startup and throughput of water occurs and exits the tailrace. This process is slow and controlled ramping up to full generator capacity.

Following the AO conditions, monitoring will be in place for turbidity during startup of the generators to monitor any turbid discharge. With monitoring in place to facilitate the prevention of any potential turbid discharge and controlling the ramping rate during Startup there should be minimal chance for a turbidity exceedance. See HOWQMP for details on monitoring.

Alternatives considered, if there appears to be a chance for a turbid discharge due to low cfs in the river: startup could be delayed until turbidity levels in river are measured and/or river flows are increase and background turbidity will be less likely to be exceeded.

3.1.2.2 Draining the Forebay

Draining the Forebay as previously described, see Sources of Sediment above, could have a potential slurry of sediment discharge when water is reaching near being completely drained out of the Forebay. Management for this will be a combination of controlling ramping rates in the Powerhouse to control flow of water draining from the Forebay and monitoring for turbidity. See HOWQMP for details on monitoring.

Alternatives if there is a chance for a turbid discharge: stop flow to prevent a turbid discharge. Any excess water requiring removal could be pumped into adjacent forested areas for filtration. Another alternative: when river flows are high and background turbidity will be less likely to be exceeded proceed with the final last few feet of draining the Forebay.

3.1.3 Mitigation Strategies

The primary mitigation method for the Project holistically is preemptive measures, seeking to use Best Management Practices (BMPs) to stabilize any disturbed areas or stockpiled materials that could be sources of erosion.

Protecting stockpiles and slopes includes BMPs that have adequate cover or stabilization as well as perimeter controls at the base of stockpiles. Additionally, maintenance of BMPs for stockpile protection includes replacing or repairing covers and perimeter controls and/or re-applying temporary stabilization when needed.

BMPs for Soil Stabilization:

- Preservation of Existing Vegetation
- Hydraulic Mulch
- Hydroseeding
- Wood mulching
- Straw Mulch
- Temporary Seeding
- Geotextile, Plastic Covers, Erosion Control Blankets & Mats
- Earth Dikes, Drainage swales & Ditches
- Outlet Protection/Velocity Dissipation Devices
- Slope Drains
- Baffles or Barriers
- Slope Terrance

BMPs for Sediment Control:

- Silt fence
- Desilting Basin
- Sediment Trap
- Check Dam
- Wattles/Fiber Rolls (straw, alder, etc.)
- Gravel Berm
- Straw Bale Barrier
- Storm Drain Inlet Protection

3.1.3.1 List of BMPs (Inventory of BMP options)

BMP Detail

- BMP C101: Preserve Natural Vegetation
- BMP C102: Buffer Zone
- BMP 103: High Visibility Marking
- BMP C105: Stabilized Construction Entrance/Exit
- BMP 107: Construction Road/Parking Area Stabilization
- BMP C120: Temporary and Permanent Seeding
- BMP C151: Concrete Handling
- BMP C153: Material Delivery, Storage, and Containment
- BMP C154: Concrete Washout Area
- BMP C160: Certified Erosion and Sediment Control Lead
- BMP C204: Pipe Slope Drains
- BMP C206: Level Spreader
- BMP C207: Check Dams
- BMP C209: Outlet Protection
- BMP C220: Storm Drain and Inlet Protection
- BMP C233: Silt Fence
- BMP C235: Wattles
- BMP C236: Vegetated Filtration
- BMP C241: Temporary Sediment Pond
- BMP C252: High pH Neutralization using CO2
- BMP C253: pH Control of High pH Water
- BMP SP1: Spill Control Plan

3.1.4 Reporting

EH will prepare an annual report that summarizes the Water Quality Management Plan, as part of that report a summary of sediment management practices and BMP performances will be included. This annual report shall be included in the annual report for the Annual Water Quality Management Report (AWQMR). The AWQMR shall be submitted to Ecology on or before January 31st of every year for reporting of January through December, beginning January 31st, 2022.

Any exceedances of water quality standards will be called in as an Environmental Report Tracking System (ERTS) notification within 24-hours of acknowledgement at 360-407-6300 and the current water quality compliance manager will be notified via notified.

3.1.4.1 Environmental Report Tracking System (ERTS)

In addition to the annual and immediate reporting, the following additional notifications are required by Ecology in response to exceedance events and changed conditions:

- High turbidity phone notification – within 24 hours
- Non-compliance notification by phone – within 24 hours
- Non-compliance reports provide written notification – within 5 days of non-compliance

Additionally, phone and written notifications report to Washington Department of Ecology – Environmental Report Tracking System (ERTS)

ERTS Number: 360-407-6300

ERTS contact: Carol Serdar, Hydropower WQ Compliance Manager

(360) 74209751

Cser461@ecy.wa.gov

3.1.5 Sediment Discharges – description of sediment discharges known for project

As of December 2021, there are no known sediment discharges for the Project.

4 Toxic Substances Plan (TSP)

4.1.1 Facility Information and Contacts

. **Local Emergency Services Telephone Number:** 911

Facility Notifications

Name: Chris Spens

Title: Licensing and Environment Director

Contact Information: (360) 746-3435

Name: Thom Fischer

Title: Project Manager

Contact Information: (360) 746-3414

Name: Adam Cleveland

Title: Project Engineering

Contact Information: (360) 746-3421

Name: Corey Kleppe

Title: Water Quality Program Manager

Contact Information: (360) 746-2271

Emergency Contacts

Federal Notifications

Name: National Response Center

Contact Information: 24-Hour Telephone - (425) 424-8802

Washington State Notifications

Name: Department of Ecology Spill Hotline

Contact Information: 24-Hour Telephone - (425) 649-7000

Name: Washington Division of Emergency Management

Contact Information: 24-Hour Telephone - (800) 565-5665

Emergency Response Contractors

Name: Pro-Vac Environmental Services

Contact Information: (888) 565-5665

Name: Clean Harbors Environmental Services, Inc.

Contact Information: (206) 290-0632

Name: Guardian Industrial Services

Contact Information: 24-Hour Telephone - (253) 536-0455

Name: Bravo Environmental NW, Inc.

Contact Information: (425) 424-9000

4.2 Purpose

The Purpose of this Toxic Substance Plan is to meet the conditions of Washington State Department of Ecology Administrative Order No. 19624 (AO) which requires a toxic substances plan that includes a narrative of all uses of chemicals, petroleum products, and other materials that have potential to pose a threat to human health or the environment that are used throughout the Project for hydroelectric operations and maintenance activities. See AO for details. This Toxic Substances plan meets the conditions of the AO.

4.2.1 Narrative for overall Project

The Project consists of multiple sites for both operation and maintenance activities across the entire facility.

The Project consists of a Headworks (diversion structure), ten-mile flume, a settling basin, a forebay reservoir, four penstocks, and a Powerhouse with a generator step-up (GSU) transformer. The facility Powerhouse is located alongside the bank of Puyallup River and has a generation capacity of approximately 26 Megawatts (MW). The location of the different components of the Project are depicted in the Overall Project Map. Oil is stored, used, or handled at the Project Headworks, in the buildings supporting the forebay, at the main office site, and at the power generation facility. The type and quantity of oil stored within these areas is provided in the following tables below.

The systems and facilities inside the Powerhouse are contained inside the building and do not discharge to waters of the state. Accordingly, they are outside the scope of this Toxic Substance Plan (TSP) but are mentioned for completeness. See Drainage Control below for further details.

The Lower Campus is composed of the main office, several facility support buildings, paved and gravel parking lot, connecting paved roadway, warehouse, and fuel area that holds two above ground storage tanks (AST's) - one for gasoline and one for diesel. Activities consist of general operation and maintenance activities that support the main office. There are no hydroelectric operations or maintenance that occur at this location. There is little to no threat to waters of the state and stormwater as all toxic substance products are stored and adequately contained in the warehouse. Products consist of deliveries of 55-gallon drums or general small lubricants and oils for tools and cleaners. The ASTs in the fuel area are described in following sections, and each AST is double-walled steel with monitoring. Thus, this area is concluded to be outside the scope of this Toxic Substance plan but is mentioned for completeness.

The Project is designed to prevent oil releases during operation or maintenance. Oil is stored in containers that are appropriate for the type of product. The containers are kept on impervious floors with appropriate secondary containment consisting of berms or similar containment

structures to control a release of any stored oil. A map showing the location of oil-containing equipment and a listing of potential releases is presented in this Toxic Substances Plan (TSP).

Oil transfers, loading, unloading, and other oil handling activities are manned operations, and transfers are performed using drip pans and/or sorbent pads to control any potential spills. Spill kits are available at the Project. Spill events at the Project have been summarized, and estimates of the volume, release rate and flow direction are presented in section 3.7.3 Spill Event History.

Discovery of spills will occur quickly. The Project is manned daily except for weekends and holidays, and oil-containing equipment is routinely inspected. Catastrophic failure of a piece of electrical equipment or rotating machinery would most likely occur during operation of the Project. In the event of such a failure the loss of generating capacity would immediately affect the transmission system. The operators of the transmission system would be quickly alerted of such a failure by alarms and would be able to activate a timely response in this event.

Cleanup of minor spills would be performed by EH personnel, whereas major spills would be controlled and cleaned up by qualified emergency response contractors. Contact information is detailed at the beginning of this plan, and includes appropriate emergency contacts, including EH personnel, and regulatory agencies, and a description of information required during a release is provided.

4.2.3 List of Oil Storage Tanks and Oil-Containing Equipment

The following oil-containing equipment is present at the Project. The approximate location of this equipment is shown in the Maps for the Project.

Table 1. Non-Electrical Oil-Containing Equipment

OIL STORAGE/OIL CONTAINING EQUIPMENT	LOCATION	QUANTITY	TOTAL STORAGE CAPACITY (GALLONS)	CONTENTS
Storage Shed	Lower Camp	1-4	220	New and Used AW 32 Lubricating Oil
Warehouse	Lower Camp	2	110	New AW 32 Lubricating Oil
Gasoline AST	Lower Camp	1	500	Gasoline
Diesel AST	Lower Camp	1	1,000	Diesel
Storage Shed	Powerhouse	1-4	55	New and Used AW 32 Lubricating Oil
Oil Drum In Storage Sheds	Upper Camp	1-4	220	New and Used AW 32 Lubricating Oil
Oil Drum In Speeder Barn	Upper Camp	1	55	New AW 32 Lubricating Oil
Gasoline UST	Upper Camp	1	550	Gasoline
Diesel UST	Upper Camp	1	550	Diesel
Fish Trap Weir Gate HPU	Upper Camp	1	50	Hydraulic Oil
Guide Net North Reel HPU	Upper Camp	1	50	Hydraulic Oil
Guide Net South Reel HPU	Upper Camp	1	50	Hydraulic Oil
Onan Generators	Intake	2	4	AW 32 Lubricating Oil
Onan Generator #3	Flood Gate	1	2	AW 32 Lubricating Oil

Table 2. Electrical Oil-Containing Equipment

Oil Storage/Oil Containing Equipment	Location	Quantity	Total Storage Capacity (gallons)	Contents
Powerhouse Hydraulic System	Powerhouse	1	250	Hydraulic Oil
Powerhouse Lubricating Oil System	Powerhouse	1	250	AW 32 Lubricating Oil
Powerhouse Generators	Powerhouse	4	400	AW 32 Lubricating Oil
Powerhouse Needle Control HPUs	Powerhouse	3	15	AW 32 Lubricating Oil
GSU Transformer	Powerhouse	1	3,955	Mineral Oil
Transformers	Old Communication Area	2	250	Mineral Oil
Generators	Old Communication Area	2	200	Diesel
Shop Transformer	Upper Camp	1	171	Mineral Oil
Fish Trap Transformer	Upper Camp	1	171	Mineral Oil
Hoist Building Transformer	Upper Camp	1	174	Mineral Oil
Old Dredge Transformer	Upper Camp	1	621	Mineral Oil

4.2.5 Description of Oil Storage and Oil-Containing Equipment

4.2.5.1 Powerhouse

The Powerhouse contains turbine-generator units that each has two cast iron bearing pedestals, each containing 50 gallons of oil for a total of 400 gallons. The Powerhouse hydraulic and lubricating systems each contains approximately 250 gallons. Both the units and the systems are permanently closed systems. A 55-gallon drum of used lubricating oil is stored on a secondary containment pad inside the Powerhouse.

4.2.5.2 Storage Shed (Powerhouse)

The three-sided shed located near the machine shop contains up to four 55-gallon steel drums of new and used oil, as well as spill kits and secondary containment supplies.

4.2.5.3 Generator Step-Up (GSU) Transformer

A 3,955-gallon generator step-up (GSU) transformer is located outside the powerhouse. The transformer is located within a fenced concrete curbed containment area that is drained through an oil stop valve. Stormwater from the pad is directed to a sump with an automatic shutoff valve. If oil is detected the valve closes and the flow is directed to the oil/water separator.

4.2.5.4 Fuel Area AST's

A steel split-tank is located in the fueling area in the Lower Camp. The split tanks consist of a 550-gallon AST of gasoline and a 1,000-gallon AST of diesel. The tanks are double-walled and equipped with a monitoring gauge and alarm.

4.2.5.5 Storage Shed (Upper Campus)

Two storage sheds are located at the Upper Camp. One shed houses 55-gallon drums of new and used oil. The second shed stores 55-gallon drums of used oil. Two transformers with a capacity of 100 and 150 gallons are also located at the camp.

4.2.5.6 Old Communication Area (Upper Campus)

The old communications area outside of the shop contains two transformers approximately 100-gallons of oil each. The site also has a generator containing 100-gallons of diesel. An additional generator with 100-gallons of diesel is located uphill next to the Gatehouse.

4.2.5.7 Fuel Area UST's

Two underground storage tanks (UST's) are located outside the forebay shop area. These tanks are 550-gallons each filled with diesel and gasoline. The tanks are double-walled and equipped with a Veeder-Root system.

4.2.5.8 Upper Campus Laydown yard

There currently are spoil piles of dirt contaminated with hydraulic fish oil contained with spoil pile BMPs with plastic underlayment and coverings.

4.2.5.9 Settling Basin

There are no permanently stored oils at this site. As needed during maintenance activities, there are times where temporary storage of gasoline and diesel fuel is needed at this location and a 520-gallon double-walled fuel cell is brought to this location for remote fueling for diesel equipment, the fuel cell and any other oil storage or containing equipment is stored in the laydown area.

4.2.5.10Headworks

There are no stored oils or other products at this location for operation and maintenance.

4.2 Potential Spills and Prevention Measures

The most likely event of a spill would occur from a leakage or rupture from a piece of equipment or drum. An event of this nature would be readily detectable during routine inspection or day to day activities and allow ample response time for containment. A spill may also occur during transport or handling of equipment on-site. The personnel performing these activities would quickly detect an event of this nature, and response would be rapid. Potential spill events at the facility are summarized below.

Table 3: Potential Spill Events

SOURCE	LOCATION	TYPE OF FAILURE	MAX VOLUME (GALS)	MAX RATE (GAL/HR)	DIRECTION OF FLOW	CONTAINMENT
Storage Shed	Lower Camp	Drum leakage; rupture	55	55	Into Pallet	Containment Pallet
Warehouse	Lower Camp	Drum leakage; rupture	55	55	Into Pallet	Containment Pallet
Gasoline AST	Main Office	Leakage; rupture	500	500	Ground	Double-walled
Diesel AST	Main Office	Leakage; rupture	1000	1000	Ground	Double-walled
Powerhouse Drum	Lower Camp	Drum leakage; rupture	55	55	Into Pallet	Containment Pallet
Storage Shed	Upper Camp	Drum leakage; rupture	55	55	Into Pallet	Containment Pallet
Speeder Barn	Upper Camp	Drum leakage; rupture	55	55	Into Pallet	Containment Pallet
Gasoline UST	Upper Camp	Leakage; rupture	550	550	Ground	Double-walled; Veeder Root system
Diesel UST	Upper Camp	Leakage; rupture	550	550	Ground	Double-walled; Veeder Root system
Powerhouse Hydraulic System	Powerhouse	Leakage; rupture	250	250	Into Sump	Powerhouse Sump; Oil Trap Vault

Powerhouse Governor Oil System	Powerhouse	Leakage; rupture	250	250	Into Sump	Powerhouse Sump; Oil Trap Vault
Powerhouse Generators	Powerhouse	Leakage; rupture	100	100	Into Sump	Powerhouse Sump; Oil Trap Vault
Powerhouse Needle Control HPUs	Powerhouse	Leakage; rupture	15	15	Into Sump	Powerhouse Sump; Oil Trap Vault
GSU Transformer	Lower Camp	Leakage; rupture	3,955	3,955	To River	Concrete Containment; Oil Stop Valve, Manual Gate Valve
Transformers	Upper Camp	Leakage; rupture	67.5	67.6	Ground	Drainage Control (Gravel); Spill Contingency Plan
Generators	Upper Camp	Leakage; rupture	100	100	Ground	Drainage Control (Gravel); Spill Contingency Plan
Hoist Building Transformer	Upper Camp	Leakage; rupture	174	174	Ground	Drainage Control (Gravel); Spill Contingency Plan
Dredge Transformer	Upper Camp	Leakage; rupture	621	621	Ground	Drainage Control (Gravel); Spill Contingency Plan
Shop Transformer	Upper Camp	Leakage; rupture	171	171	Ground	Drainage Control (Gravel); Spill Contingency Plan
Fish Trap Transformer	Upper Camp	Leakage; rupture	171	171	Ground	Drainage Control (Gravel); Spill Contingency Plan
Onan Generators	Intake	Leakage; rupture	4	4	Ground	Drainage Control (Gravel); Spill Contingency Plan
Onan Generator #3	Flood Gate	Leakage; rupture	2	2	Ground	Drainage Control (Gravel); Spill Contingency Plan

4.2.2 Oil Spill Containment Systems

4.2.2.1 Powerhouse

The concrete crawlspace runs the length of the powerhouse underneath the generators. Fluids in the crawlspace flow east and collect in a drainage sump. Two sump pumps, float switch activated, transfer all fluids in the sump into the oil trap vault. If the high-level alarm in the oil trap vault is activated, then an auto diversion valve directs the fluids to the secondary containment around the GSU transformer.

4.2.2.2 General Step-Up (GSU) Transformer

Prior to flowing into the Puyallup River, drain water from the containment area around the GSU transformer passes through the GSU drain vault, which is a catch basin fitted with an oil stop valve. Drainage from the GSU drain vault is additionally controlled by a gate valve.

4.2.2.3 Fuel Area AST's

The fuel tank area is underlain by glacial till comprised of clay and gravel. If fuel is released, it will infiltrate into the gravel surface. The tanks have double walls to prevent spills due to leakage.

4.2.2.4 Storage Shed

All 55-gal drums in the storage shed are stored on secondary containment pallets. These pallets are sufficient to hold the entire contents of a 55-gallon drum plus freeboard space.

4.2.2.5 Upper Camp Equipment

Much of the Upper Camp area is underlain by a gravel surface. If liquid is released by any of the equipment, it will infiltrate into the gravel surface.

4.2.2.6 Storage Shed (Upper Camp)

All 55-gal drums in the storage shed are stored on secondary containment pallets. These pallets are sufficient to hold the entire contents of a 55-gallon drum plus freeboard space.

4.2.4 Drainage Control

Drainage from the Powerhouse flows into the sump located on the east end of the building. When the sump level is sufficiently high, float switch activated pumps move the water to the oil trap vault via 4" PVC piping. The oil trap vault discharges into the 12" diameter concrete storm water pipe that empties directly into the Puyallup River. The 300-gallon oil trap vault will not allow oil to pass through, closing its discharge if oil is present. If the sump pumps continue to operate when the oil trap vault's discharge is closed, the vault will fill with fluid. The vault is equipped with a float switch to detect a high fluid level. When the float switch is tripped, an alarm is activated. The tripped float switch also causes the auto diversion valve, a motor-operated ball valve, to close, diverting the sump pumps' flow into the GSU transformer oil containment area instead of the oil trap vault.

The oil stop valve in the GSU drain vault will close if oil is present, containing GSU spills as well as any oil being diverted from the powerhouse. Additionally, the 4" manual gate valve on the discharge side of the GSU drain vault can be closed for further assurance of isolation.

When the high-level float switch in the oil trap vault triggers an alarm and closes the auto diversion valve, the valve will remain closed until manually reset at the diversion valve control box.

The GSU drain vault catch basin is periodically inspected. If oil is observed in the containment area, drainage from the area would be contained in the containment area until removed by a Vactor Truck and disposed of properly.

The Lower Camp fuel area and Upper Camp transformers and generators are underlain by a gravel surface with no drainage. If oil or fuel is released, it will infiltrate into the gravel and be cleaned up using procedures consistent with the magnitude of the release.

4.2.2 Spill Reporting Procedures

Contact the following persons immediately for assistance regarding a spill or suspected spill.

Water Quality Program Manager, Corey Kleppe: (808)-859-5633

Project Engineering, Adam Cleveland: (360) 746-3421

Project Manager, Thom Fischer: (360) 739-9999

Spills must be reported to appropriate Federal, State and local agencies if they result in a release of oil from the facility or produce a sheen or discoloration on the surface of an adjacent water body. The following information needs to be readily available when reporting a spill from the facility:

Name of Facility: Electron Hydro Generating Facility

Facility Main Telephone Number: (360) 761-1600

Location of Facility: 19318 Electron Road

Orting, WA 98360

County: Pierce

GPS Coordinates: _____

Date and Time of Release: _____

Type of Material Released: _____

Estimated Quantity of Material Released: _____

Source of Material Released: _____

All Media Affected by Release: _____

Cause of Release: _____

Damages or Injury Cause by Release: _____

Actions Taken to Control the Release: _____

_____

People and Organizations that have been Contacted Regarding this Release: _____

_____

Is An Evacuation Needed? Yes/ No

4.3 Inspections and Monitoring

EH has prepared a Hydroelectric Operations Water Quality Monitoring Plan (HOWQMP) that details the visual monitoring protocol for water near and adjacent to stored oils and oil-containing equipment. See HOWQMP for details

4.3.1 Oil-Filled Equipment

Oil-filled equipment and containment systems are inspected during the routine walk-through of the facility. This includes inspecting each container for any leaks or weeps on the container, valves, seams, pipes, or other structure. Additionally, all secondary containment systems are inspected for any deterioration.

4.3.2 Bulk Storage

All above ground storage tanks for the Project are double-walled. Internal corrosion poses a minimal risk. The sides of the containers are visible, and exteriors are not in contact with the ground. All bulk storage containers have adequate secondary containment in place. Storage tanks are subject to integrity testing under API SP-001 including the dual-tank diesel and gasoline AST's in the fueling area at the Lower Camp. Other bulk storage containers at the site are either temporary and removed prior to any required integrity testing or are otherwise not subject to the integrity testing requirements.

4.3.3 Oil-Trap Vault and Powerhouse Sump

The oil-trap vault, GSU drain vault oil stop valve, and powerhouse sump are inspected on a quarterly basis, or after a spill has occurred from that location. The basins will be cleared of any debris if necessary. The inspections ensure that the two float valves, vault alarm, and the two sump pumps are working effectively.

Documented inspections are performed and recorded at least once a month on the Project Visual Monitoring Form (see Attachments).

4.3.4 Underground Storage Tanks

The on-site foreman manages and performs inventory control of the UST's. The tanks are registered and regulated under the Washington State Underground Storage Tank Program administered by the Department of Ecology.

4.4 Training and Discharge Prevention Measures

Spill prevention training will be provided on an annual basis to all personnel that are involved in handling oil. The training program includes the information included in this Plan, methods and procedures used to prevent, control, and clean up an oil spill, and a review of pollution control regulations. Training will also include describing any known releases or failures at the Project, lessons learned from these events, updates on facility equipment and new precautions to be observed.

Training programs and periodic briefings include review of this Plan and describe actual experiences, recent spill events or failures, and new preventive control and cleanup measures. The individual responsible for training shall maintain a copy of the training roster in Attachment of this Plan.

4.4.1 Oil Loading and Handling Procedures

It is stressed to all personnel that an essential part of oil spill prevention is being alert for signs of leaks and the prevention of spills during daily activities. This is accomplished by being observant and performing regular inspections at the Facility. These inspection procedures, as required by 40 CFR Part 112.8(d)(4) are described in detail in Section 4.3. Leaks or spills shall be immediately reported in accordance with Section 1.1 and the Section 6.1.2 of this document, and appropriate response activities shall be started immediately.

4.4.2 Best Management Practices (BMPs)

Here is a list of BMPs to be utilized for the containment and prevention of toxic substance spills:

- Material Delivery and Storage
- Material Use
- Stockpile Management
- Spill Prevention and Control
- Spill Response Plan
- Contaminated Soil Management
- Concrete Waste Management
- Liquid Waste Management
- Secondary Containment

4.4.2.1 Transferring Fuel or Oil

During oil or fuel pumping or transferring operations, drip pans and absorbents must be on hand to catch drips or leaks. Personnel shall not leave transfer operations unattended, and all oil spills are to be documented.

4.4.2.2 Handling Oil-Filled Equipment

Spill kits will be readily available when handling oil drums and oil-filled equipment. Drums or oil-filled equipment will be sealed and properly secured before they are loaded and moved.

4.4.2.3 OIL CONTAINMENT KITS

The equipment and material in the Oil Spill Containment Kits are stored throughout the facility as indicated in the facility site plan in Figure 2. Kits shall be readily accessible and shall not be hidden or covered with other materials or used for anything other than their intended purpose. Additional kits and materials are available from the emergency response contractor if required.

4.6 Spill Event Containment and Countermeasure Procedure

4.6.1 General Procedures

Containment and countermeasure actions must start immediately after a spill is discovered. The primary objective will be to contain spilled oil within the immediate area and prevent it from leaving the site or entering navigable waters of the United States. This objective shall be met while maintaining proper health and safety procedures. General procedures to be followed in all cases of an oil spill event are described below.

4.6.1.1 Identification

Upon discovery of a spill during normal operations or as a result of an alarm at the Project, the discoverer shall immediately evaluate whether the spill can be approached safely. From a safe distance, the discoverer shall evaluate the nature and extent of the spill. If possible and safe, the discoverer shall identify the source and stop the leak. The discoverer then shall initiate immediate action to contain the spill and shall make the notifications described in Section 1.1 or the following section.

4.6.1.2 Notification and Emergency Contacts

See the Project's emergency contacts and notifications in Section 3.1.1 of this plan. For further information, refer to the Project's spill reporting procedure in section 3.2.2 of this plan and the Spill Response Plan, see Attachments.

4.6.1.3 Containment

EH personnel will use available spill kits and equipment stored at the facility for containment and cleanup. In the event of a large spill, the emergency response contractor will bring material, personnel, and equipment as required to control and/or contain the spill. This equipment may be limited to hand tools and sorbent media for any spill that may be reasonably anticipated to occur at the Project. The emergency response contractor has other equipment available, up to and including heavy earthmoving equipment and watercraft capable of recovering spills from waterways in the event of a catastrophic failure at the Project. EH Personnel and/or the cleanup contractor will use the following general actions and guidelines for spill control and containment.

- Confine and prevent any further spread of the oil (see Attachment: Spill Control/Spill Response Plan)
- Reduce or eliminate the spread of oil by using drain system isolation valves, dikes, channels, dams and/or oil absorbent material (see Spill Control/Spill Response Plan).
- Block catch basins by putting plastic sheeting under the catch basin grates and/or by building diversion dikes around the catch basin.

- Stop the oil leak at its source, for example:
    - Plug the leak with available material; or
    - If a piece of equipment or a transformer is leaking, it may be possible to stop the leak at its source by raising the point that is leaking, such as by tilting the equipment, or by placing on it on its side or upside down.
- If rupture or leak cannot be plugged, use bins, pans, barrels, or containers to catch the oil if possible.

After the spill has been contained, the environmental manager will coordinate cleanup of the material.

4.6.1.4 Cleanup

After the spill has been contained, the Water Quality Program Manager will coordinate cleanup of the material in accordance with the Spill Control/Spill Response Plan. For large spills that cannot be adequately cleaned up using the Project's on-site resources, an Emergency Contractor will be contacted for additional services. Disposal of spilled oil and contaminated materials shall be arranged by the Water Quality Program Manager and disposed of at the South King County Waste Management Facility, which is a licensed moderate-risk waste facility. Recovered oil, contaminated soil, or contaminated water will be disposed of by recycling, thermal treatment, and/or landfilling at permitted facilities as appropriate.

4.6.2 Assessing the Spill Event

In accordance with the Project's spill response and reporting procedures, the Water Quality Program Manager shall be notified of the spill event. If necessary, the Water Quality Program Manager shall coordinate any environmental sampling necessary to evaluate areas affected by the spilled oil, assess, and quantify the potential environmental damage, and collect necessary information that may include soil and water samples to confirm that the extent of spilled material has been identified and spilled material has been cleaned up.

4.6.3 Conformance with State Requirements

Oil spills in the State of Washington are regulated under the Revised Code of Washington (RCW), Chapters 90.48 and 90.56, which are enforced by the Washington State Department of Ecology (Ecology). RCW 90.48.080 prohibits the discharge of polluting materials into the waters of the State, and RCW 90.56 describes the spill prevention and cleanup process. There is no ***de minimus*** release amount defined in these regulations. Rather, any amount of oil that degrades the waters the State constitutes a release. Ecology typically considers the creation of a visible sheen on the water as a spill.

The goal of this Plan is consistent with the objective of RCW 90.48.080, and the items presented in this Plan, including prevention planning, facility design and operation, spill response, and spill notification requirements are in general conformance with the requirements of RCW 90.56. The conformance of the Project with the requirements of 40 CFR Part 112 as discussed in Section 3.1 of this document addresses the requirements of RCW 90.56.

4.7 Reporting

EH will prepare an annual report that summarizes all spill events and performance of BMPs used for the Project. This annual report shall be included in the annual report for the Annual Water Quality Management Report (AWQMR). The AWQMR shall be submitted to Ecology on or before January 31st of every year for reporting of January through December, beginning January 31st, 2022.

Any exceedances of water quality standards will be called in as an Environmental Report Tracking System (ERTS) notification within 24-hours of acknowledgement at 360-407-6300 and the current water quality compliance manager will be notified via notified.

4.7.1 Environmental Report Tracking System (ERTS)

In addition to the annual and immediate reporting, the following additional notifications are required by Ecology in response to exceedance events and changed conditions:

- High turbidity phone notification – within 24 hours
- Non-compliance notification by phone – within 24 hours
- Non-compliance reports provide written notification – within 5 days of non-compliance

Additionally, phone and written notifications report to Washington Department of Ecology – Environmental Report Tracking System (ERTS)

ERTS Number: 360-407-6300

ERTS contact: Carol Serdar, Hydropower WQ Compliance Manager

(360) 74209751

Cser461@ecy.wa.gov

4.7.3 Spill Event History

Two minor spill events have occurred at the Project in the past 5 years. The first event occurred on March 13th, 2017 and resulted in approximately 1 quart of biodegradable hydraulic oil (fish oil) from a hydraulic hose leak where a sheen was observed within the Electron Hydro Project waterways. The sheen was contained with booms and absorbent pads at the Forebay entrance from the Flume with secondary booms deployed at the entrance to the Penstocks. The second spill event occurred on July 30th, 2018 and resulted in approximately half of one gallon of biodegradable hydraulic oil (fish oil) that sprayed onto the ground due to a cracked hose fitting. Spill kits were deployed. In both instances the appropriate notifications and reporting was performed, and a complete clean-up of the material was achieved. There was no estimated release of oil from the Project Facility to the Puyallup River in either instance.